

Ricoh Aficio SP C830DN/SP C831DN



Produce high-quality color with ease

The RICOH® Aficio® SP C830DN and SP C831DN are the easy choices for fast, productive, full-color printing. These versatile systems offer incredible image quality and user-friendly customization to enhance efficiencies for light production environments. From the intuitive, full-color touch-screen control panel with standard USB and SD Card slots to advanced security features, flexible media handling capabilities and eco-friendly enhancements, these systems streamline color workflows and improve productivity. Your customers will notice the compelling, attention-grabbing graphics. You'll appreciate the impact on your bottom line. Choose one as your primary system and print everything for your office — or as an integral part of a Ricoh Managed Document Services (MDS) strategy and help improve printing productivity throughout your organization.

- Print up to 45/55 prints per minute
- Simplify everyday tasks with the touch-screen control panel
- Protect document and data integrity
- Help minimize energy use
- Customize the system to accommodate unique workflows



Power, versatility and convenience in a sleek, compact design

Enhance full-color workflows

Manage demanding workloads

Print with incredible speed and efficiency and get started quickly with short warm-up times and fast print speeds. Create an abundance of presentations, reports, brochures, booklets and more at up to 55 pages-per-minute. With a powerful 600 MHz or 1GHz processor, the Ricoh Aficio SP C830DN and SP C831DN can handle incoming data streams with ease to accommodate higher-volume workloads. Plus, these systems come standard with 512 MB RAM and can be upgraded to 1.5 GB RAM for convenient storage of multiple projects.



Produce high-quality graphics

Deliver graphics-quality output on paper sizes up to 11" x 17" and keep more jobs in-house. With robust 4-bit color technology, the Ricoh Aficio SP C830DN and SP C831DN print with impressive 9,600 x 600 dpi equivalent resolution for exceptional image clarity. The proprietary, oil-free polyester polymerization (PxP) toner delivers smooth gradations for crisper lines and sharper color reproductions. Edit images through the powerful drivers and take advantage of advanced color simulation.



Operate with ease

Perform tasks at your convenience with customized controls. The 4.3" color touch-screen control panel provides intuitive menu navigation and one-touch access to job and system status and frequently used job lists. Step-by-step, animated guidance and easy-to-see icons ensure easy operation. Users can even preview jobs before printing for optimal accuracy.



Handle more media more ways

Build a system configuration to accommodate the unique needs of your print environment. From 3.55" x 5.83" postcards and envelopes to saddle-stitched 11" x 17" booklets, the SP C830DN and SP C831DN offer a variety of paper supply options to meet your specific workflow requirements. The systems come standard with two 550-Sheet paper trays and a 100-Sheet Bypass Tray. Optional Paper Feed Units add an additional 1,100 sheets or an optional 1,200-Sheet Side Large Capacity Tray and 2,000-Sheet Large Capacity Tray extend maximum paper supply to 4,400 sheets for higher volume environments.



Fast, reliable color output for high-volume print environments

Secure more accountability

Help protect the integrity of documents and data with robust, easy-to-use security features. For example, user authentication requires users to swipe an ID card or submit a password at the control panel to access user-assigned tasks and documents. The 250 GB Hard Disk Drive (HDD optional for the SP C830DN) protects latent images stored at the printer with Data Encryption and DataOverwriteSecurity System (DOSS). With the HDD, a Locked Print feature stores documents with sensitive information until they are released by authorized users at the device. Administrators can also set print quotas to limit user volumes, set print rules and curb unnecessary printing.



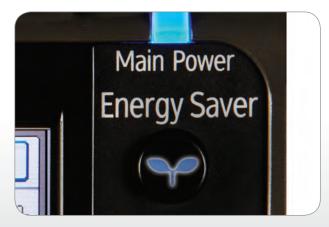
Finish professional documents in-house

Ensure your printed materials make more of an impact. The systems feature multiple finishing options to stack, staple and hole-punch documents as well as create saddle-stitched booklets in-house. These printers may be configured with a user-assignable 4-Bin Mailbox and/ or one of two finishers capable of stapling, hole punching, and saddle stitch booklet production. The 3,000-Sheet Finisher is ideal for high-volume environments that require long, unattended print runs and the ability to staple in portrait or landscape orientation. The 2,000-Sheet Booklet Finisher saddle-stitches and folds output sets so booklets are ready for immediate distribution.



Maximize energy efficiency

The Ricoh Aficio SP C830DN and SP C831DN offer a wide range of ecofriendly features to improve typical energy consumption (TEC). ECO Night Sensor gives you a choice for how you want to conserve energy when the office is empty. Choose whether the printer turns off automatically, or enters Sleep mode, after the lights are off for a preset time period. Advanced fusing technology requires less electricity to warm up for faster first print and recovery times. The Eco-Friendly Indicator on the control panel displays each user's print history and its simulated impact on the environment to encourage more responsible printing.



Manage image quality, productivity and costs effectively

Print from more locations

Print when and where it's most convenient. The Ricoh Aficio SP C830DN and SP C831DN feature a USB/SD card slot right on the control panel, so users can print files from portable media with ease. Users can also print using their smartphones and tablets for easy, on-the-go performance. With one simple application download, users gain access to a host of mobile printing functions that streamline workflow even more.



Reduce total cost of ownership

Discover incredible value with a versatile printer that handles everyday black-and-white documents and high-end color graphics with minimal cost-per-page and maintenance costs. The Ricoh Aficio SP C830DN and SP C831DN are completely user-serviceable to maximize uptime. Individual toner bottles and the high-yield OPC drum unit can be replaced in seconds. Plus, Economy Color Mode reduces the amount of toner automatically — without compromising text quality — for fast color drafts at minimal cost.



Connect with efficiency

The Ricoh Aficio SP C830DN and SP C831DN offer seamless network connectivity with Standard USB 2.0 and 10/100 Base-TX Ethernet interfaces for peer-to-peer and shared use environments. Dual USB 2.0 host interfaces allow for direct connection to third party external devices, including a magnetic card reader for user authentication and to print from PictBridge-enabled cameras. Plus, the systems include optional Gigabit, Wireless LAN and parallel interfaces to meet your unique network requirements.







- **4-Bin Mailbox (Optional):** Keep documents separate from multiple users with the 4-Bin Mailbox.
- 2 Output Jogger Unit (Optional): Available with the 3,000-Sheet Finisher, the Output Jogger Unit offsets finished documents for easy retrieval or transfer to off-line finishing equipment like GBC or spiral binders.
- **2,000-Sheet Booklet Finisher (Optional):** Produce full-color booklets cost-effectively with the in-line Booklet Finisher. Also available with an optional Hole Punch Unit.
- **3,000-Sheet Finisher (Optional):** Take advantage of high-volume, professional-quality, multi-position stapling with the 3,000-Sheet Finisher. Add the optional Hole Punch Unit for even more flexibility.
- 5 Full-Color Touch-Screen LCD Control Panel with Built-in USB/SD Slot: Navigate from job to job easily via the intuitive angled customizable control panel featuring an integrated USB/SD Card slot for mobile printing using a PictBridge-enabled camera or memory card.
- 6 ECO Night Sensor: Saves energy by automatically turning the printer off or placing it in Sleep mode after the room goes dark.
- Automatic Duplexing (Standard): Produce two-sided documents on sturdy media such as flyers, menus, pamphlets, brochures, and newsletters at virtually no loss in productivity.
- 8 PxP Toner Technology: Provides more vivid colors and smooth gradations for improved text, fine lines, graphics and photographic reproductions.
- 250 GB Hard Disk Drive: Secure documents with DataOverwriteSecurity System (DOSS), data encryption, Locked Print and more. Standard for the SP C831DN. Optional for the SP C830DN.
- Media Flexibility: Produce high quality full-color and monochrome output ranging in paper size and weight from postcards and envelopes to saddle-stitched 11"x 17" booklets (up to 82 lb. Bond/170 lb. Index through the Bypass Tray) all from a single device.
- **Easy Maintenance:** Maximize productivity with supplies that are easy for any user to replace.
- 12 Paper Trays (Standard): Load up to 1,200 sheets with two standard 550-Sheet Paper Trays and a 100-Sheet Bypass Tray.
- Paper Feed Units (Optional): Add an optional 550-Sheet
 Paper Feed Unit for a maximum paper capacity of 1,750 sheets
 (requires Caster Table, not shown) or two optional 550-Sheet
 Paper Feed Units for a maximum paper capacity of 2,300 sheets.
- Large Capacity Trays (Optional): Maximize total paper capacity with the 1,200-Sheet Side Large Capacity Tray and/ or the 2,000-Sheet Large Capacity Tray.
- **Broad Compatibility:** Quickly integrate these systems with built-in compatibility for PC and Macintosh environments.



Specifications

Duplex Print Speed

Print Resolution

Paper Types

SP C830DN Part # 430709 SP C831DN Part # 430713 Configuration Technology

Desktop Color Laser Beam Printer Laser-beam scanning & electrophotographic printing with dual component toner

development, 4-drum tandem method 4.3" color touch screen with integrated USB 2.0 host port and SD card slot Operation Panel SP C830DN: 45-ppm B&W and full-color Printing Speed SP C831DN: 55-ppm B&W and full-color SP C830DN: 29 seconds or less SP C831DN: 25 seconds or less Warm-Up Time First Print Speed SP C830DN: Black & White: 3.7 seconds or

less; Full Color: 5.7 seconds or less SP C831DN: Black & White: 3.4 seconds or less; Full Color: 5.1 seconds or less Near 100% productivity for all paper sizes 300 x 300-dpi (1-bit), 600 x 600-dpi (2-bit) (Default), 600 x 600-dpi (1-bit, 4-bit), 1200 x

Standard Paper Supply

(Defauth, 600 x 600-dpi (1-bit, 4-bit), 1200 x 1200 dpi (1-bit)
550 x 2 Paper Tray + 100-Sheet Bypass Tray (1,200 sheets total capacity)
4,400 sheets (Standard Trays 1 & 2 + 2,000-Sheet LCT + 1,200-Sheet Side LCT + 100-Sheet Bypass Tray)
Standard: 500 sheets, face down (8.5" x 11" or smaller); 250 sheets, face down (8.5" x 14" or larged; 450 sheets, face down (8.5" x 14") Maximum Paper Supply

Output Capacity or larger); Maximum; Up to 4,000 sheets with

Paper Sizes

or larger); Maximum: Up to 4,000 sheets with Finisher, Bridge Unit and 4-Bin Malibox Standard Tray 1: Fixed for Letter (8.5° x 11") (216 x 279mm), A4, A5 Standard Tray 2 and Optional Paper Feed Units: User adjustable for Letter (8.5° x 11"), Legal (8.5° x 14"), Exec (10.5° x 7.25"), Ledger (11" x 17"), A3, A4, A5; Custom Sizes: 5.83° x 7.17" - 11.69° x 17" (148 x 182mm - 297 x 432mm) Envelopes: Com10, C5 Bypass Tray: User adjustable for 5.5° x 8.5"

Envelopes: Com10, C5 Bypass Tray: User adjustable for 5.5" x 8.5" - 11" x 17" (140 x 216mm - 279 x 432mm); Custom Sizes: 3.55" x 5.83" - 12" x 49.6" (90 x 148mm - 305 x 1260mm) Envelopes: Com10, Monarch, C5, C6, DL Envelopes: ComTu, Monarch, US, US, DL Optional 2,000-Sheet LCT and Optional 1,200-Sheet Side LCT: Fixed for Letter (8.6" x 11") (216 x 279mm), A4 When Duplexing: 3.55" x 5.83" – 11.69" x 17" (90 x 148mm x 279 x 432mm) Standard Tray x, Optional Paper Feed Units, and Optional 2,000-Sheet LCT: 14 – 68 lb. Peod/ 140 lb. Indox (65, 256 dms)

Paper Weights Bond/ 140 lb. Index (52 – 256 g/m²) Bypass Tray: 14 – 82 lb. Bond/170 lb. Index

(52 – 300 g/m²)

Optional 1,200-Sheet Side LCT: 16 – 58 lb. Bond/120 lb. Index (60 – 216 g/m²)

Duplex Unit: 14 – 45 lb. Bond/90 lb. Index

Duplex Unit: 14 – 45 lb. Bond/90 lb. Index (52 – 189 g/m)
All Sources: Plain Paper, Recycled Paper, Color Paper, Letterhead, Special Paper 1-3, Card Stock, Bond Paper, Preprinted Paper Envelopes: Com10 and C5 envelopes can be fed using Standard Tray 2, Bypass Tray and Optional Paper Feed Units
Bypass Only: Labels, OHP, Coated Paper

Envelopes: Com10, Monarch, C5, C6, DL

Automatic Duplex Dimensions (WxDxH) Standard
Base Model: 26.4" x 26.9" x 25.2" (670 x 684 x 640 mm)

X 640 mm)
Base Model: Less than 213 lb. (97 kg)
120 – 127V, 60Hz
1.1 W (Sleep Mode) Weight Power Requirements Power Consumption

SP C830DN - 2.033 kWH/week SP C831DN - 2.638 kWH//week 1,584 W or less; Sleep: 1.2 W or less Operating

Print Controller Specifications (Standard)

SP C830DN: Intel Celeron-M 600MHz SP C831DN: Intel Celeron-M 1GHz Standard 512 MB RAM/Maximum 1.5 GB Memory RAM SP C830DN: Optional 250 GB Hard Disk Drive

SP C831DN: Standard 250 GB (both models include standard Hard Disk Drive Encryption Unit and DataOverwriteSecurity

Standard: PCL 5c. PCL 6. Adobe Printer Languages

Print (JPEG/TIFF)
Optional: PictBridge, Genuine IPDS Host

Print, XPS (via download), Universal Driver (via download) Standard: PCL: 45 + 13 International, PostScript3/PDF: 136

Optional: IPDS: 108 10/100Base-TX Ethernet, High Speed USB 2.0 Type B, Dual USB 2.0 Host Type A, USB 2.0 Type A/SD Card Slot integrated into Control Panel (for Print From Portable Media)

Gigabit Ethernet (1000Base-T) Type D, IEEE 802.11a/g Wireless LAN Type L, IEEE 1284/ Optional Interfaces*

FCP Parallel Interface Type A Network Protocols

Standard: TCP/IP (IPv6)
Optional: IPX/SPX
Windows XP, Vista, 7, Server 2003/R2, Server Operating Systems

windows X+, visita, *, Server 2003/H2, Server 2008/H2; Citrix Presentation Server 4.5, Citrix XenApp 5.0+; Mac OS X v10.4 – 10.7; SAP R/3; Novell NetWare Server 6.5 (option is required), UNIX (Using Ricoh UNIX filter): Sun Solaris 2.6/7/8/9/10, HP-UX 10.x/11.x/11i v2/11i v3, SCO OpenServer 5.0.6/5.0.7/6.0, RedHat Linux Enterprise 4/5/6, IBM AIX 5L version 5.3/6.17.7 version 5.3/6.1/7.1

version 5.3/6.1/7.1 SmartDeviceMonitor for Admin and Client; SmartDeviceMonitor for Admin Accounting Report Package; Web SmartDeviceMonitor; Web Image Monitor; Remote Communication

Gate Type S; @Remote

Controller and Memory Options

Software Utilities

LEE 1284 Interface Board Type A - Part # 411699
IEEE 802.11a/g Wireless LAN Type L - Part # 403000
Gigabit Ethernet Board Type D - Part # 407087
Camera Direct Print Card Type J - Part # 416006
VM Card Type U - Part # 416163
IPDS Unit Type C830 - Part # 407081
1 GB Memory Unit Type O - Part # 007097MIU
250 GB Hard Disk Drive Type C830 (SP C830DN only) - Part # 007098MIU

Document Server Specifications*

Total HDD Capacity Max. Stored Documents 250 GB (shared with other functions) 3,000 files

1,000 page Max. Pages/Document Max. Stored Page Capacity Approx. 9,000 pages total *Standard for SP C831DN: Optional for SP C830DN

Hardware Accessories

550 x 1 Paper Feed Unit (PB3120) - Part # 415794

Paper Capacity 550 sheets 7.25" x 10.5" - 11" x 17", A3, A4, A5 Paper Sizes Envelopes: Com10, C5 14 – 68 lb. Bond/140 lb. Index (52 – 256 g/m²)

Paper Weights

Faper Vergins
550 x 2 Paper Feed Unit (PB3130) – Part # 415793
Paper Capacity
1,100 sheets
Paper Sizes
7,25" x 10.5" – 11" x 17", A3, A4, A5

Envelopes: Com10, C5 14 – 68 lb. Bond/140 lb. Index (52 – 256 g/m²) Paper Weights

2,000-Sheet Large Capacity Tray (LCT) (PB3140) - Part # 415795 Paper Capacity

2,000 sheets (1,000 x 2) 8.5" x 11", A4 Paper Sizes Paper Weights 14 - 68 lb. Bond/140 lb. Index (52 - 256 g/m²)

1,200-Sheet Side Large Capacity Tray (LCT) (RT3020)* - Part # 415984 Paper Capacity 1,200 sheets 8.5" x 11", A4 Paper Sizes Paper Weights 16 - 58 lb. Bond/120 lb. Index (60 - 216 g/m²)

*Requires configuration with 550 x 2 Paper Feed Unit (PB3130) or 2,000-Sheet Large Capacity Tray (PB3140).

Large Cabinet Stand (FAC 52) - Part # 416337

The Large Cabinet Stand (FAC 52) must be selected when the printer main unit is to be configured with a Finisher, but not a paper supply option.

Caster Table Type D - Part # 415811

The Caster Table Type D is recommended when the main unit is configured with the 550×1 Paper Feed Unit (PB3120).

3.000-Sheet Finisher (SR3120)* - Part # 416008

Modes Paper Sizes

20)* - Part # 416008 Shift Sort, Stack, Staple, Optional Hole Punch Proof Tray: 5.5" x 8.5" - 11" x 17", A5 - A3 Shift Tray: 5.5" x 8.5" - 11" x 17", A5 - A3 Proof Tray: 14 - 28 lb. Bond (52 - 105 g/m) Shift Tray: 14 - 68 lb. Bond/140 lb. Index (52 - 256 g/m) Proof Tray: 250 sheets (8.5" x 11" or smaller), Paper Weights Stack Capacity

50 sheets (8.5" x 14" or larger) Shift Tray: 3,000 sheets (8.5" x 11"), 1,500 sheets (8.5" x 14" or larger), 500 sheets (5.5"

50 sheets (8.5" x 11" or smaller); 30 sheets (8.5" x 14" or larger; 30 sheets (Mixed Sizes: Staple Capacity Letter and Ledger) 8.5" x 11" - 11" x 17", A4 - A3

Staple Paper Sizes Staple Paper Weights 17 - 24 lb. Bond (64 - 90 g/m²) Staple Positions staple/3 positions

2 staples/1 position 25.9" x 24.1" x 37.8" (657 x 613 x 960 mm) 119 lb. (54 kg) Dimensions (WxDxH) Weight Staple Cartridge Capacity 5.000 staples/cartridge

*Requires configuration with Bridge Unit (BU3060) and 550 x 2 Paper Feed Unit (PB3130), 2,000-Sheet Large Capacity Tray (PB3140), or Large Cabinet Stand

2,000-Sheet Booklet Finisher (SR3110)* - Part # 416007

Shift Sort, Stack, Staple, Saddle Stitch, Optional Hole Punch Modes

Proof Tray: 5.5" x 8.5" - 11" x 17", A5 - A3 Shift Tray: 5.5" x 8.5" - 11" x 17", A5 - A3 Booklet Tray: 8.5" x 11", 8.5" x 14", 11" x 17", Paper Sizes

Paper Weights

Proof Tray: 14 – 43 lb. Bond / 90 lb. Index

Proof Iray: 14 – 43 b. Bond / 90 lb. Index (52 – 183 g/m)
Shift Tray: 14 – 68 lb. Bond / 140 lb. Index (52 – 256 g/m)
Sooklet Tray: 17 – 24 lb. Bond (64 – 90 g/m)
Proof Tray: 250 sheets (8.5" x 11" or smaller), 50 sheets (8.5" x 14" or larger)
Shift Tray: 2,000 sheets (8.5" x 14" or larger), 7,000 sheets (8.5" x 14" or larger), 500 sheets (6.5" x 14" or larger), Stack Capacity

Should, J. (30 sheets (5.5" x 8.5")

Booklet Tray: 30 sets (2 – 5 sheets/set, all sizes, saddle-stitch); 15 sets (6 – 10 sheets/set, all sizes, saddle-stitch); 10 sets (11 – 15 sheets/set, all sizes, saddle-stitch)

Normal Staple: 50 sheets (8.5" x 11" or smaller), 30 sheets (8.5" x 14" or larger and/ Staple Capacity

or Mixed Sizes)
Saddle Stitch: 15 sheets (up to 60 pages)
Normal Staple: 8.5" x 11" – 11" x 17"
Saddle Stitch: 8.5" x 11", 8.5" x 14", 11" x 17",

Staple Paper Sizes

Staple Paper Weights Staple Positions

Saddle Stitch: 8.5" x 11", 8.5" x 14", 11" x 1/", 45 – A3 17 – 24 lb. Bond (64 – 90 g/m') 1 staple/3 positions (Top, Top Slant, Bottom); 2 staples/2 center positions Normal Staple: 5,000 staples/cartridge Saddle Stitch: 2,000 staples/cartridge 55.9" x 24.1" x 37.8" (657 x 613 x 960 mm) 103.6 lb. (47 kg) Staple Cartridge Capacity
Dimensions (WxDxH) Weight

*Requires configuration with Bridge Unit (BU3060) and 550 x 2 Paper Feed Unit (PB3130), 2,000-Sheet Large Capacity Tray (PB3140), or Large Cabinet Stand

4-Bin Mailbox Type CS3000* - Part # 407088

The 4-Bin Mailbox Type CS3000 can be installed by itself or simultaneously with either Finisher; with or without paper supply options.

Number of Bins 4 bins

125 sheets x Travs = 500 sheets Capacity Per Bin 75.5 x 8.5" - 11" x 17", A3, A4, A5, A6 16 - 34 lb. Bond (60 - 128 g/m²) 17.3" x 18.7" x 14.8" (440 x 475 x 375 mm) Paper Size Paper Weight

Dimensions (WxDxH) Weight 17.6 lb. (8 kg)

Punch Unit Type PU3030 - Part # 430719

The Hole Punch Unit Type PU3030 is optional for both Finishers; installs inside the Finisher. 2 holes: 5.5" x 8.5" - 11" x 17", A5 - A3 3 holes: 8.5" x 11", 11" x 17", A4 - A3 Punch Paper Sizes Punch Paper Weight 14 - 43 lb. Bond / 90 lb. Index (52 - 163 g/m²)

The Bridge Unit (BU3060) – Part # 415988

The Bridge Unit (BU3060) is a required accessory when the main unit is to be configured with either Finisher. The Bridge Unit transports pages from the printer's standard exit area into a Finisher for online stapling, punching, and/or folding.

and/or folding.

Sheet Capacity 250 sheets (8.5" x 11" or smaller),
125 sheets (8.5" x 14" or larger)

Output Jogger Unit Type 9002A - Part # 415903

The Output Jogger Unit Type 9002A is optional for the 3,000-Sheet Finisher only, It taps sheets in the Shift Tray into aligned sets for stacking or off-line

binding.
Paper Size
Paper Weight
Shift Capacity 5.5" x 8.5" – 11" x 17", A5 – A3 14 – 68 lb. Bond / 140 lb. Index (52 – 256 g/m²) Up to 20 mm 4.25" x 17.8" x 5.1" (108 x 452 x 130 mm) Dimensions (WxDxH) Weight 4.4 lb. (2 kg)

Supplies

Consumables
Print Cartridge Black (Type SP C830DNA)
Print Cartridge Yellow (Type SP C830DNA)
Print Cartridge Vallow (Type SP C830DNA)
Print Cartridge Cyan (Type SP C830DNA)
Print Cartridge Cyan (Type SP C830DNA)
Black Drum Unit (Type SP C830DN)
Color Drum Unit (Type SP C830DN)
(Includes Cyan, Magenta & Yellow units)
Transfer Unit (Type SP C830DN)
Fusing Unit (Type SP C830DNA)
Waste Toner Bottle (Type SP C830DN)
Staple Type K for SR3120 Finisher
Staple Type K Refill for SR3120/SR3110
Staple Type K Refill for SR3120/SR3110
Staple Type K refill) Consumables Part # Yield' 23,500* 27,000* 27,000* 821183 821184 27.000* 407095 407096 60,000 60,000 x 3 407097 200.000 407098 407100 160,000 40,000 410801 5,000/carton 410802 412874 15,000/carton 5,000/carton (Uses Type K refill)

*Declared yield values in accordance with ISO/IEC 19798.

For maximum performance and yield, we recommend using genuine Ricoh parts and supplies

The Ricoh Aficio SP C830DN and SP C831DN is under warranty against defects for a period of one year from the date of purchase. Consumables are under warranty for a period of 90 days from the date of purchase or until depleted, which ever comes first. Please refer to warranty documents shipped with the product for more details.



Standard Interfaces

www.ricoh-usa.com







Bluetooth @Remote



